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SUBJECT INDEX

INTRODUCTION

The entries in this index refer to the abstracts by their serial number, not by the page number. The entries are grouped under headings (printed in bold type, e.g. "**Abrasion**") which represent, in the main, general categories or concepts rather than specific names. If a heading for a particular subject does not appear, a more general heading should be consulted; for example, "Zone plates" would be listed under "**Diffraction**"; "Barkhausen discontinuities" under "**Magnetization process**". There are numerous cross-references directing attention to related headings in other parts of the index.

Many of the headings are subdivided by the use of subheadings, which are indented (i.e. printed slightly to the right) and commence with a small letter (for example, see the subheadings under "**Absorption**").

ARRANGEMENT OF HEADINGS AND SUBHEADINGS

The headings are arranged throughout the index in alphabetical order according to British Standard 1749:1951 (the "word by word" system, not "reading right through"). The subheadings, with a few exceptions, are themselves arranged in alphabetical order under their respective headings. The exceptions (for example, see the subheadings under "**Spectra**", "**Crystal structure, atomic**") are cases where a more logical order is preferable to a purely alphabetical one.

ARRANGEMENTS OF ENTRIES UNDER HEADINGS

Entries are arranged in two alphabetical groups as follows. First group: generalities and named substances (in words); second group: named substances (chemical formulae). If a search is being made for a particular substance, both the first and second alphabetical groups should be inspected since, for example, alumina may also be listed as Al_2O_3 .

COLLECTED LIST OF SUBJECT HEADINGS

The alphabetical arrangement of the headings is the most convenient for locating a known heading quickly, but there may be other related headings elsewhere in the index of which the reader is unaware, and which he would only come across by accident. To assist the reader to discover all the headings appropriate to his subject, a collected list of the headings is given at the end of the index, which should be consulted as a matter of routine each time a search is made. In this list, the headings are not arranged in alphabetical order, but are grouped into sections by subject on the same basis as the arrangement of the abstracts in the monthly issues of Physics Abstracts. By using this list, the reader can quickly determine which are the headings appropriate to his subject, and they are then easily found in the main index in their alphabetical position.

HEADINGS WITH NO ENTRIES

Because physics is a developing subject, it is not possible to maintain the list of headings unchanged from year to year; it is subject to a continuous process of revision, with the introduction of new headings and subheadings, and the alteration and elimination of old ones. This process is a gradual one, however, and the great majority of the headings are the same as those of the previous year. To assist in maintaining the continuity of the index, all the headings in current use are printed each year, even those for which there are no abstracts to be recorded in the present volume. The latter are followed by the announcement "No entries this year"; this supplies confirmation that these headings have not been dropped from the index, and entries may reappear under them next year.

ELEMENTS, COMPOUNDS AND OTHER SUBSTANCES

The names of elements, their compounds, a few compounds of special interest (e.g. "**Water**") and a few common materials (e.g. "**Wood**", "**Paper**") are included as headings. Under these, as well as under the appropriate "subject" headings, are listed any abstracts which contain significant physical information about the element, compound or substance named; except, however, that abstracts listed under headings referring to nuclear properties, including radio-activity, are not necessarily also listed under the substance name. The entries under these headings are themselves arranged in alphabetical order of substance or nuclide names, so that a given substance can be readily located.

Inorganic compounds of the elements are listed under the first element in the chemical formula, and all the compounds of a given element are grouped under a single heading (e.g. "**Sodium compounds**"). Alloys are listed under the first constituent, e.g. Cu-Ni alloys under "**Copper compounds**". Organic compounds are grouped under "**Organic compounds**", "**Polymers**", "**Plastics**" and under special substance headings such as "**Paper**", "**Proteins**", etc.; all the latter are listed in the collected list of headings at the end of the index.

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See Mechanical strength

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imperfections

See Crystal imperfections; Colour centres.

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See Dielectric devices.

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No entries this year

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Meson field theory

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Night sky

See Airglow.

Nightglow

See Airglow.

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X-rays

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See Crystals, electron states; Electron gas; Solids

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Positive ray sources

See Ion sources.

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See also Electron pairs; and Electrons, which includes both negative and positive electrons when the differences between them are of no special significance.

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X-rays

See X-rays scattering

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An introduction to the Subject Index will be found on page S1.

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Biographies	Conferences	Laboratory apparatus and		Physics fundamentals
Books	History	Nomenclature and symbols		Recording
				Reviews

EDUCATION

Biographies	Laboratories	Physics	Reviews
Books	Laboratory apparatus and technique	Physics fundamentals	Teaching
History	Measurement errors		demonstrations

UNITS . MEASUREMENT . METROLOGY

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Alignment	Dimensions	Micrometry	Time interval measurement
Altimeters	Force measurement	Nomenclature and symbols	Time measurement
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Angular velocity measurement	Length measurement	Recording	Vapour pressure measurement
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digital computer programmes			

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			Scattering

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Probability
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Transport processes

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Compressibility
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Density
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thermal
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liquids
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Vortices
Wetting

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acoustic waves, ultrasonic
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Acoustic wave propagation
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Compressibility
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Dielectric properties of substs.
liquids and solutions
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Electroluminescence
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Association	Electroluminescence	Nuclear magnetic resonance	Statistical mechanics
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Shock waves
Vibrations
Waves

VIBRATIONS . ELASTIC WAVES

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Explosions	Shock waves
Schlieren systems	effects
	Supersonic flow

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Noise	
acoustic	

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Brightness	Photometers
Colour	Photometry
Colorimetry	light sources
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	polyatomic,radiofrequency		Temperature measurement
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			Zeeman effect

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Pyrometers
Radiation
heat
Radiation detectors
Radiation pressure

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solids	

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	many-particle systems

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Superconductivity

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liquid, sound propagation
solid
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Electromagnetism
Magnetism

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	Filters, electrical	Photovoltaic effects	

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Ionization	recombination
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liquids	Shock waves
solids	effects
Ionization potential	Space charge

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liquids	Lightning
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Corona, electric discharge	Sputtering

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Ionization	Nuclear reactors, fusion	devices (propagation)	Space charge
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Plasma
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Light
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Parity
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 Beta-ray spectra
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 Beta-ray spectrometers

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 Nucleons and antinucleons
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 antinucleons

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 production
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 Strange particles

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Tritons

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composition	protons
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mesons	showers and bursts
	variations

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Cyromagnetic ratio	Nuclear decay theory	(relaxation)	electric moment
Hypernuclei	Nuclear forces	Nuclear orientation	energy levels
		Nuclear physics	magnetic moment
			models
			size
			spin and parity
			theory

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Nuclear excitation
Nuclear isomerism
Nucleus
energy levels
models

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Alpha-ray spectra	Beta-rays	Gamma-ray spectrometers	Radiation protection
Alpha-ray spectrometers	absorption	Gamma-rays	Radioactive dating
Alpha-rays	angular distribution	absorption	Radioactive tracers
absorption	detection, measurement	angular distribution	Radioactivity
angular distribution	effects	detection, measurement	artificial production
detection, measurement	polarization	effects	decay periods
effects	scattering	internal conversion	decay schemes
scattering	Biological effects of radiations	scattering	electron capture
Beta-decay theory	Chemical effect of radiations	Nuclear decay theory	Radioactivity measurement
Beta-ray spectra	ionizing radiations	Nuclear bombardment targets	apparatus
conversion electrons	Dosimetry	Physical effects of radiations	Radiochemistry
	Fallout		

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Nuclear fission
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- | | | | |
|----------------------------------|------------------------|---------------------------|--------------------------------|
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| Chemical analysis | detection, measurement | products | Physical effects of radiations |
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| ionizing radiations | interactions | chemical effects | Radiation monitoring |
| Dosimetry | moderation | Nuclear reactors, fission | Radiation protection |
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| | scattering | | |

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Constants
Molecules
Orbital calculation methods
Quantum theory

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- | | | | |
|---------------------|---------------------|-----------------------------|------------------------|
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| electron scattering | Collision processes | Ionization potential | Spectra |
| excitation | Constants | Luminescence | atoms |
| magnetic moment | Elements | gases | Spectral line breadth |
| structure | origin | Optical pumping | Stark effect |
| Atomic beams | relative abundances | Orbital calculation methods | Zeeman effect |
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- | | |
|---------------------|---------------------|
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| Isotope exchanges | accessories |
| Isotope separation | applications |
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| relative abundances | Radiochemistry |
| Mass spectra | Tracers |

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|------------------------------|----------------------------------|
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| Luminescence | resonance |
| gases | inorganic molecules |
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| Molecules | diatomic, radiofrequency |
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| organic | inorganic liquids and solutions |
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relaxation
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Geophysical prospecting
Geophysics

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Gravity
Minerals
Oceanography
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Radioactivity
Seawater
Seismic waves
Seismology

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- | | | | |
|----------------|--------------------------|----------------------------------|------------------------|
| Altimeters | Atmospheric acoustics | Electromagnetic wave propagation | Meteorology |
| Anemometers | Atmospheric electricity | atmosphere | Rain |
| Atmosphere | Atmospheric optics | Evaporation | Rockets |
| composition | Atmospheric pressure and | Fallout | Satellites, artificial |
| humidity | (density) | Fog | Sky brightness |
| movements | Atmospheric spectra | Humidity | Snow |
| precipitation | Atmospherics | Hygrometers | Sunlight |
| radioactivity | Clouds | Ice | Thunderstorms |
| structure | Condensation | Lightning | Twilight |
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| thermodynamics | | | Wind |

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- | | | | |
|-----------------|-------------------------|--------------------------|------------------------|
| Airglow | Atmosphere | Atmospheric pressure and | Meteors |
| Altimeters | structure | (density) | Rockets |
| Atmosphere | temperature | Atmospheric spectra | Satellites, artificial |
| composition | thermodynamics | Atmospherics | Sky brightness |
| movements | upper | Aurora | Sunlight |
| radioactivity | Atmospheric electricity | Fallout | Twilight |
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IONOSPHERE

- | | |
|----------------------------------|--------------------------------|
| Electromagnetic wave propagation | Ionosphere measuring apparatus |
| ionosphere | Ionization, atmosphere |
| Ionosphere | |
| D-region | |
| E-region | |
| F-region | |

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- | | |
|----------------------------|-----------------|
| Compasses | Magnetic storms |
| Earth | Magnetism |
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|----------------------------|---------------------|---------------------|---------------------|
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| Astronomical observations | Cosmic rays | origin | Telescopes |
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- | | |
|----------------------|-------------------------|
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| Magnetohydrodynamics | radiation |
| Nebulae | spectra |
| Novae | structure |
| | Thermonuclear reactions |

SOLAR SYSTEM . SUN

- | | | | |
|-------------------------------|-----------------------|-------------|------------------------|
| Comets | Interplanetary matter | Sun | Sun |
| Cosmic rays | Meteorites | corona | radiation |
| Earth | Meteors | eclipses | radiation, corpuscular |
| rotation | Moon | flares | spectra |
| Gravitation | Planets | magnetism | Sunspots |
| Interplanetary magnetic field | Solar system | prominences | Zodiacal light |

RADIOASTRONOMY

- Cosmic radiations, r.f.
- Radioastronomy
- Sun
 - radiation, r.f.

SPACE RESEARCH

- Rockets
- Satellites, artificial
- Space research
- Space vehicles
 - instrumentation

BIOPHYSICS . PHYSIOLOGICAL PHYSICS

Biological effects of radiations
 acoustic waves
 ionizing radiations
 Biological technique and instruments
 Biology
 Biophysics
 Blood

Bone
 Dosimetry
 Medical science
 Physiology
 Proteins
 Radiation protection
 Radiography
 Zoology

HEARING . SPEECH

Ear
 Hearing
 Noise
 acoustic
 Speech

VISION

Eye
 Vision
 Colour vision
 Stereoscopy

TECHNIQUE . MATERIALS

Biological technique and instruments
 Chemical technology
 Laboratory apparatus and technique
 Leak detection
 Low-temperature technique
 Materials
 Metallurgy
 Vacuum technique
 Zone melting and refining

All the chemical elements are listed by name, followed by their compounds and alloys. Organic compounds are grouped under the headings "Organic compounds", "Polymers", "Plastics". In addition, there are also the following headings:

Actinides
 Actinide compounds
 Alkali metals
 Alkali metal compounds
 Alkaline earth metals
 Alkaline earth compounds
 Alloys
 Ceramics
 Ferrites
 Ferroelectric materials
 Fibres
 Garnets
 Halogens

Inert gases
 Metals
 Minerals
 Optical materials
 Porous materials
 Powders
 Proteins
 Rare earth metals
 Rare earth compounds
 Semiconductors
 Semiconducting materials
 Transition metals
 Transition metal compounds
 Waxes

as well as the following special substance headings:

Air
 Blood
 Bone
 Clay
 Coal
 Concrete
 Deuterium
 Diamonds
 Gelatin
 Glass
 Graphite
 Ice
 Mica

Ozone
 Paper
 Quartz
 Rochelle salt
 Rubber
 Sand
 Seawater
 Soil
 Steam
 Steel
 Tritium
 Water
 Wood